Project Title: An airway pressure device for use in an MRI machine

Team Members:
   Laura Sheehan - Leader
   Jon Cappel – Communications
   Noelle Simatic – BWIG
   Kevin Johnson – BSAC

Client: Victor Haughton, M.D.
   UW Department of Radiology
   3252 Clinical Science Center-E3
   Phone: 263-5306
   email: vmhaughton@facstaff.wisc.edu

Advisor: Mitch Tyler

Date: 9/23/05 – 9/29/05

Problem Statement: Our client Dr. Haughton is currently studying CSF flow during Valsalva maneuvers performed by children with Chiari I malformations. Current research suggests that CSF flow decreases during Valsalva maneuvers in these patients. The airway pressure device would help monitor the exhalation force exerted by each child during a Valsalva maneuver in the MR suite. Knowing the pressure exerted by each patient in the study would be extremely beneficial for data analysis and accuracy.

Last Week’s Goals:
   ● Discuss all possible design ideas and components (Mouthpieces, valves, tubing, nanometers, pressure sensors, monitoring capabilities, etc.)
   ● Divide the design up into components/materials and investigate suppliers, pricing, and features; Each team member will look into different components
   ● Gather enough information to be able to create a list of what needs to be ordered by Friday, September 30
   ● Divide up work on PowerPoint for Midsemester Presentation and final paper

Individual Goals:
   Laura – Progress report, write up background on anesthesia and ventilation systems
   Jon – Write up background on Valsalva maneuvers
   Noelle – Work on project website, write up background on Chiari I malformations
   Kevin – Write up background information on spirometers, other commercially available airway pressure devices, and MR safety regulations

Summary of Accomplishments:
   ● Complied a list of advantages and disadvantages of design alternatives
   ● Researched possible components and materials for design
   ● Gathered information regarding the pricing and features of possible components to discuss with client on Friday, 9/30
• Created a system schematic in block diagram format
• Started PowerPoint Presentation in class on Friday, 9/23
• Completed background sections for the final paper

This Week’s Goals:
• Meet with client at noon on Friday, 9/30 to present preliminary design sketches, system schematic, and demonstration of prototype function
• Invite our client to Midsemester presentation on Friday, 10/14 and obtain time preference
• After receiving client’s feedback, evaluate material options and start ordering parts
• Complete slides for Midsemester Presentation
• Divide up speaking responsibilities for presentation

Project Difficulties: None

Activities:
Laura – In-class meeting, progress report, brainstorming and research, team meeting to discuss design components: 5.5 hours
Jon – In-class meeting, brainstorming and research: 4.5 hours
Noelle – In-class meeting, work on project website, brainstorming and research, team meeting to discuss design components, work on PowerPoint for Midsemester Presentation: 5 hours
Kevin – Brainstorming and research, team meeting to discuss design components, completed system schematic: 5.5 hours

Team Total Hours for this Week: 20.5 hours

Project Schedule:

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